

560

Michael

TRAFFIC SPEED REPORT

NO. 69

JUNE 1960

NO. 12

Joint
Highway
Research
Project

PURDUE UNIVERSITY
LAFAYETTE INDIANA

by

N. JOUZY

Progress Report
TRAFFIC SPEED RECORD

TO: K. B. Woods, Director
Joint Highway Research Project

FROM: H. L. Michael, Assistant Director
Joint Highway Research Project

June 1, 1951

Subj: C-1

"Traffic Speed Report for 1950" authors: [redacted], Research Assistant on our staff is attached. The progress report on the continuing study of speed trends has been prepared under the supervision of Professor H. L. Michael.

The results of this study indicate that the average speeds of cars and trucks were slightly less during the period of the study than they were in August 1949.

Copies of this report after acceptance by the Board will in addition to the normal distribution also be forwarded to the Indiana State Police, Office of Traffic Safety, the Traffic Engineering Department of the State Highway Department, and the Bureau of Public Roads.

The report is submitted for the record and also release for distribution.

Respectfully submitted,

Harold L. Michael
Harold L. Michael, Assistant

HL:mke

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Progress Report

Traffic Speed Report No. 69

by

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Joint Highway Research Project
File: 8-3-3
Project: C-36-100

Purdue University
Lafayette, Indiana

June 8, 1960

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TRAFFIC SPEED REPORT NO. 69

This report covers spot speed observations made during the months of March and April 1960. All observations were made of free moving vehicles on level tangent sections of rural highways. The locations of the spot stations were the same as for previous studies and are as follows:

1. U. S. 52 ~ 1.0 mile south of south junction of S. R. 28 -
(Dual Lanes)
2. U. S. 52 ~ 1.0 mile west of Klondike (Dual Lanes)
3. U. S. 52 ~ 2.2 miles northwest of Templeton (2 lanes)
4. U. S. 31 ~ 7.2 miles north of Perrysburg (2 lanes)
5. S. R. 25 ~ 0.7 mile south of Americus (2 lanes)
6. U. S. 41 ~ 1.0 mile north of Baswell (2 lanes)

An Electromatic Radar Speed Meter was used to collect the data for this study. The meter was concealed as part of a rural mailbox and placed close by to the edge of the pavement. It was directed along the highway at a small angle with respect to the direction of traffic so that it was not necessary to make an angle correction to the readings.

The observers concealed themselves from traffic as much as local conditions permitted and it is thus believed that the speeds of the observed vehicles were not influenced by the observer or the equipment.

The radar equipment used will not operate properly if the voltage varies more than minus 1/2 volt or plus 1 volt from the optimum twelve volts. The voltage was therefore checked periodically in the field and maintained within the desired range. Also, correct calibration was maintained by periodically checking it with a 60 mile per hour tuning fork.

A summary of the results of this study, as well as of the last seven studies, is given in Table I. Indiana State law limits the speed of passenger cars and trucks under 5,000 pounds (GVW) to 65 miles per hour. The speed limit of trucks over 5,000 pounds (GVW) is 50 miles per hour on all highways except that on four-lane highways, which have a median strip of at least twenty feet in width, the speed limit is 55 miles per hour. This new speed limit for trucks has been in effect since about May 1959. However, some, but not all, truck speed limit signs have been posted along the state highways to reflect this change. It can be assumed though, that by now a large portion of the truck drivers are aware of this speed limit change.

Truck speeds are shown in the tables for three groups: light trucks, heavy trucks, and all trucks. Also, it is noted whether the highway is 2-lane or 4-lane. All 4-lane observation stations were on highways with a median of greater than twenty feet. Since weights were not taken in this study, light trucks (less than 5,000 pounds) were considered to be only panel trucks and pick-up trucks. All other types of trucks were classified as heavy (over 5,000 pounds).

The passenger car data were also classified into three groups: Indiana, out of state, and all passenger cars. The classification was determined by observing the license plate on each passenger car passing the observation station.

So that an easy comparison can be made between the results of the present study and the last previous study, the results from each speed station for both studies are tabulated in Tables II through VII.

Average and 85th percentile speeds were computed for each vehicle group from the sample of vehicles taken at each study site. A comparison

is then made with the speeds of the last study in July and August of 1959, and the differences in speeds are briefly discussed.

The average speed for all passenger cars decreased by 1.4 miles per hour since the last study (August 1959) while average speeds for all trucks decreased 1.1 miles per hour. Indiana passenger cars decreased their average speed on 2-lane highways by 2.3 miles per hour while their average speed on 4-lane highways decreased by 0.3 miles per hour. Out of state passenger cars decreased their average speed on 2-lane highways by 0.5 miles per hour while their average speed on 4-lane highways decreased by 0.9 miles per hour.

The average speed for light trucks decreased by 1.2 miles per hour on 2-lane highways and increased 2.4 miles per hour on 4-lane highways.

For heavy trucks the average speed decreased 0.8 miles per hour on 2-lane highways and decreased 5.8 miles per hour on 4-lane highways.

The 85th percentile speed for all passenger cars decreased by 0.5 miles per hour.

Trend information on the average speed of passenger cars and trucks is shown in Table 1 and Figure 7 and 8. Table 1 is a summary of Spot Speed Observations on Indiana Highways for the last eight studies since February 1956. This summary of Spot Speed lists the observations for Two-lane Highways, Four-lane Highways and All Highways for both passenger cars and trucks.

Figure 7 is a graph showing rural speed trends from 1942-1960. The speed trends shown are for passenger cars, light trucks and heavy trucks.

Figure 8 is a graph showing trends in percentile speeds and speed differential from 1949 - 1960. The percentile speeds shown are for both

passenger cars and heavy trucks. The speed differential is the difference between the 85th percentile of passenger cars and 15th percentile of heavy trucks.

TABLE I

SUMMARY OF SPOT SPEED OBSERVATIONS
ON INDIANA HIGHWAYS

(Free-Moving Vehicles on Level, Tangent Sections)

| | | Passenger Cars | | | | Trucks | | |
|-----------------------|----------|----------------|-----------------|-------------|---------------|---------------|---------------|-------------|
| | | Ind Mean | Non-Ind Mean | All Mean | All 85 per | Light Mean | Heavy Mean | All Mean |
| Two-Lane Highways | Feb. '56 | 54.9 | 58.0 | 55.9 | 63.2 | 47.1 | 43.2 | 44.4 |
| | Aug. '56 | 55.0 | 56.3 | 55.5 | 63.4 | 50.6 | 45.5 | 46.6 |
| | May '57 | 55.6 | 59.1 | 56.9 | 64.0 | 50.2 | 44.8 | 46.1 |
| | Aug. '57 | 55.5 | 56.7 | 55.9 | 62.1 | 51.7 | 45.8 | 47.3 |
| | Aug. '58 | 54.9 | 56.3 | 55.0 | 61.7 | 53.0 | 46.3 | 47.8 |
| | Mar. '59 | 55.5 | 57.7 | 56.1 | 61.9 | 50.4 | 45.4 | 46.3 |
| | Aug. '59 | 55.6 | 55.3 | 55.9 | 63.2 | 47.7 | 46.7 | 48.0 |
| | Mar. '60 | 53.27 | 54.8 | 53.7 | 61.2 | 48.5 | 45.9 | 46.6 |
| Four-Lane Highways | Feb. '56 | 58.1 | 60.1 | 58.7 | 65.7 | 47.8 | 45.2 | 45.8 |
| | Aug. '56 | 57.4 | 58.8 | 58.2 | 66.8 | 49.6 | 46.0 | 47.4 |
| | May '57 | 59.9 | 63.6 | 61.0 | 69.0 | 52.2 | 46.0 | 47.9 |
| | Aug. '57 | 57.5 | 59.9 | 58.5 | 64.8 | 52.0 | 46.6 | 47.6 |
| | Aug. '58 | 58.0 | 59.6 | 58.7 | 65.0 | 51.3 | 49.0 | 50.0 |
| | Mar. '59 | 58.2 | 61.7 | 59.0 | 61.9 | 53.6 | 47.0 | 48.4 |
| | Aug. '59 | 58.4 | 60.1 | 59.1 | 64.5 | 50.0 | 53.1 | 49.5 |
| | Mar. '60 | 58.1 | 59.2 | 58.4 | 65.0 | 52.4 | 47.3 | 48.4 |
| All Highways | Feb. '56 | 56.0 | 58.6 | 56.8 | 63.8 | 47.3 | 44.0 | 44.9 |
| | Aug. '56 | 55.7 | 57.3 | 56.4 | 64.5 | 50.2 | 45.6 | 46.9 |
| | May '57 | 57.2 | 60.3 | 58.3 | 66.0 | 50.9 | 45.2 | 46.6 |
| | Aug. '57 | 56.2 | 58.2 | 56.9 | 63.2 | 51.8 | 46.1 | 47.4 |
| | Aug. '58 | 55.7 | 57.9 | 56.5 | 63.1 | 53.4 | 47.5 | 48.7 |
| | Mar. '59 | 56.6 | 59.0 | 57.2 | 63.1 | 51.5 | 45.9 | 47.0 |
| | Aug. '59 | 56.5 | 58.4 | 57.4 | 63.5 | 50.6 | 47.8 | 48.6 |
| | Mar. '60 | 55.6 | 57.1 | 56.3 | 63.0 | 50.2 | 46.5 | 47.5 |



Station 1 Mile south of south junction of US 52 & SR 28

Surface 4 lane divided - 24' bituminous concrete

Weather Cloudy - windy
 Last Previous Observation (Speed Report No. 67)
 Date Aug. 3, 1959
 Time 4:45 - 4 PM 8:50 - 10:50 AM

Date April 3; April 6; April 8, 1960

Time 2:15 - 2:55 PM; 1:35 - 3:30 PM;

[illegible]





IV

3:00 - 4:30 PM

| OBSERVATION | PASSENGER CARS | | | | | | TRUCKS | | | | | | BUSES | | |
|----------------------|-----------------|-----------------|--|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------------|-----------------|-----------------|---------------------|-----------------|
| | All | | | Indiana | | Non-Indiana | | All | | | Less than 5000 pounds | | | 5000 pounds or more | |
| | Last Present | Last Present | | Last Present | Last Present | Last Present | Last Present | Last Present | Last Present | Last Present | Last Present | Last Present | Last Present | Last Present | Last Present |
| No. of Vehicles Obs. | 222 | 157 | | 99 | 64 | 123 | 93 | 41 | 7 | 4 | 62 | 37 | | | |
| Ave. Speed (m.p.h.) | 56.5 | 56.7 | | 56.3 | 57.0 | 56.7 | 56.4 | 48.3 | 47.6 | 49.8 | 47.9 | 47.3 | | | |
| 45 m.p.h. | — | — | | — | — | — | — | 84.1 | 78.1 | 100 | 82.3 | 78.0 | | | |
| 50 m.p.h. | 86.0 | 92.0 | | 82.8 | 92.2 | 88.6 | 91.4 | 47.8 | 48.8 | 85.7 | 43.5 | 46.0 | | | |
| 55 m.p.h. | 63.1 | 61.0 | | 59.6 | 64.0 | 65.9 | 58.0 | 7.2 | 5.0 | 42.9 | 3.2 | 3.0 | | | |
| 60 m.p.h. | 35.6 | 42.0 | | 38.4 | 33.0 | 33.3 | 32.0 | 1.4 | 0.0 | 0.0 | 1.6 | 0.0 | | | |
| 65 m.p.h. | 10.8 | 9.0 | | 11.1 | 9.0 | 10.6 | 9.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| 70 m.p.h. | 4.1 | 3.0 | | 4.0 | 5.0 | 4.1 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| 75 m.p.h. | 0.5 | 0.0 | | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| No. of Vehicles Obs. | 155 | 96 | | 64 | 38 | 91 | 58 | 38 | 23 | 4 | 34 | 21 | | | |
| Ave. Speed (m.p.h.) | 56.7 | 57.4 | | 56.2 | 56.6 | 57.0 | 58.0 | 48 | 47.3 | 53.5 | 47.4 | 47.0 | | | |
| Max. Speed (m.p.h.) | — | — | | 74 | 72 | 70 | 72 | — | — | 56 | 54 | 55 | | | |
| State or Type | — | — | | — | — | — | — | — | — | — | — | — | | | |
| Min. Speed (m.p.h.) | — | — | | 28 | 46 | 39 | 48 | — | — | 50 | 28 | 38 | | | |
| State or Type | — | — | | — | — | — | — | — | — | — | — | — | | | |
| No. of Vehicles Obs. | 67 | 61 | | 35 | 26 | 32 | 35 | 26 | 18 | 3 | 23 | 16 | | | |
| Ave. Speed (m.p.h.) | 56.3 | 55.4 | | 56.5 | 57.7 | 56.0 | 53.7 | 48.7 | 47.9 | 51.0 | 48.5 | 47.7 | | | |
| Max. Speed (m.p.h.) | — | — | | 78 | 70 | 70 | 72 | — | — | 56 | 55 | 60 | 53 | | |
| State or Type | — | — | | — | — | — | — | — | — | — | — | — | | | |
| Min. Speed (m.p.h.) | — | — | | 38 | 40 | 42 | 42 | — | — | 46 | 44 | 40 | | | |
| State or Type | — | — | | — | — | — | — | — | — | — | — | — | | | |

A

Station 7.8 Miles N. of Perrysburg on US 31

Surface 2 Lane 22' Bituminous

Weather Cloudy

Last Previous Observation (Speed Report No. 67)

Date March 29, 1960

Date Aug. 10, 1959

Time 12:45 - 4:15 PM

Time 10:10 AM - 12:40 PM

[illegible]



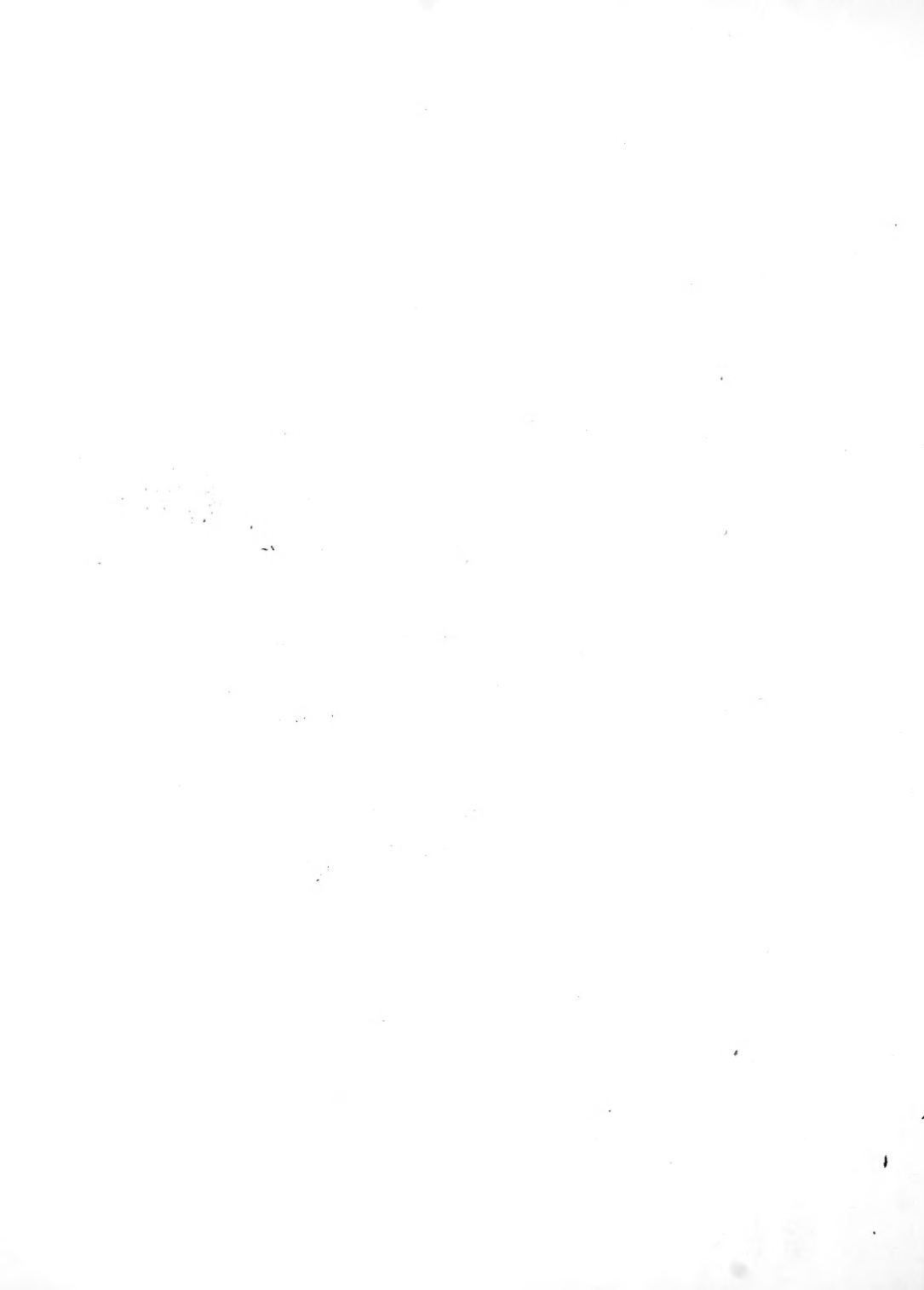
TABLE

VI

Station 0.7 miles W. Americus on S. R. 25

| | | | | |
|---|--------|----------------|---------------|----------------|
| Surface | 2 lana | 22' Bituminous | Weather | Fair and Sunny |
| This Observation | | Date | July 16, 1960 | |
| Time | | 2:45 - 4:20 PM | | |
| Last Previous Observation (Speed Report No. 67) | | Date | July 16, 1960 | |
| Time | | 2:35 - 5:05 PM | | |

[illegible]



vii

Time 9:00 - 11:45 AM

| PASSENGER CARS | | | | | | | | | | TRUCKS | | | | | | BUSES | | | | | |
|----------------|--|--|--|--|--------------|--|--|--------------|--|--------|--------------|--|--|-----------------------|--|-------|---------------------|--|-----|--------------|--|
| All | | | | | Indiana | | | Non-Indiana | | | All | | | Less than 5000 pounds | | | 5000 pounds or more | | All | | |
| Last Present | | | | | Last Present | | | Last Present | | | Last Present | | | Last Present | | | Last Present | | | Last Present | |
| 259 255 | | | | | 124 149 | | | 135 106 | | | 87 104 | | | 24 31 | | | 63 73 | | | | |
| 57.0 52.6 | | | | | 56.4 51.8 | | | 57.6 53.7 | | | 46.3 45.8 | | | 50.6 47.0 | | | 44.6 45.3 | | | | |
| 84.6 71 | | | | | 83.1 67.0 | | | 85.9 76.5 | | | 55.8 54.0 | | | 83.3 48 | | | 50.8 56 | | | | |
| 66.0 42 | | | | | 63.5 38.0 | | | 68.9 48.0 | | | 33.3 31.0 | | | 54.2 35 | | | 25.4 29 | | | | |
| 43.2 18 | | | | | 43.2 15.0 | | | 45.2 23.0 | | | 8.0 8.0 | | | 16.7 13 | | | 4.8 3 | | | | |
| 13.1 4 | | | | | 11.2 3.0 | | | 14.8 5.0 | | | 2.2 2.0 | | | 8.3 6 | | | 0.0 0.0 | | | | |
| 4.2 2 | | | | | 4.0 1.0 | | | 4.4 2.0 | | | 0.0 2.0 | | | 0.0 6 | | | 0.0 0.0 | | | | |
| 0.4 0.0 | | | | | 0.8 0.0 | | | 0.0 0.0 | | | 0.0 1.0 | | | 0.0 3 | | | 0.0 0.0 | | | | |
| 129 148 | | | | | 67 76 | | | 62 72 | | | 37 47 | | | 11 15 | | | 26 32 | | | | |
| 57.3 53.5 | | | | | 56.6 52.5 | | | 58.1 54.6 | | | 46 44.6 | | | 52 47.2 | | | 43.4 43.5 | | | | |
| | | | | | 77 70 | | | 74 72 | | | | | | 69 76 | | | 56 58 | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | 35 34 | | | 40 38 | | | | | | 40 36 | | | 30 30 | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| 130 107 | | | | | 57 73 | | | 73 34 | | | 50 57 | | | 13 16 | | | 37 41 | | | | |
| 56.8 51.3 | | | | | 56.2 51.1 | | | 44 51.7 | | | 46.5 46.8 | | | 49.5 46.9 | | | 45.5 46.7 | | | | |
| | | | | | 70 70 | | | 74 64 | | | | | | 60 60 | | | 55 56 | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | 36 32 | | | 40 38 | | | | | | 39 36 | | | 34 34 | | | | |
| | | | | | | | | | | | | | | | | | | | | | |



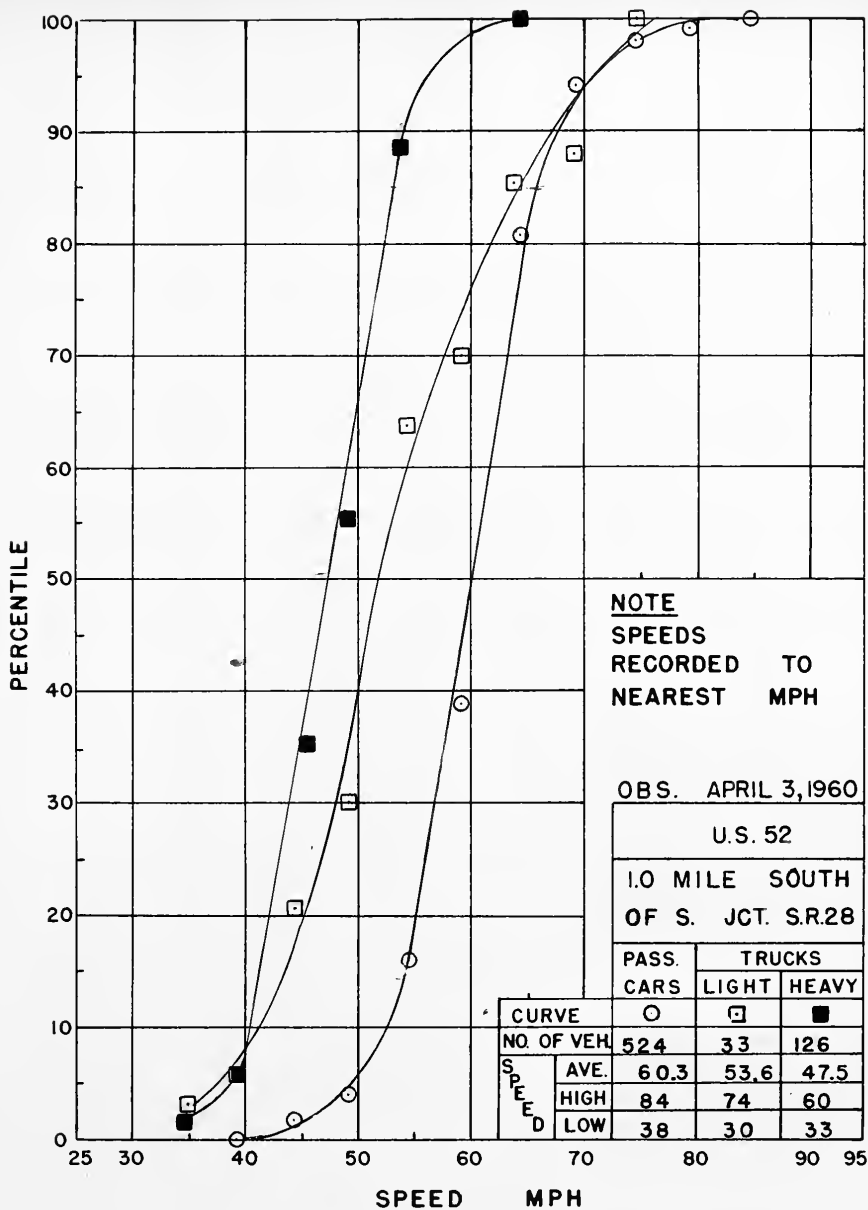


FIGURE 1



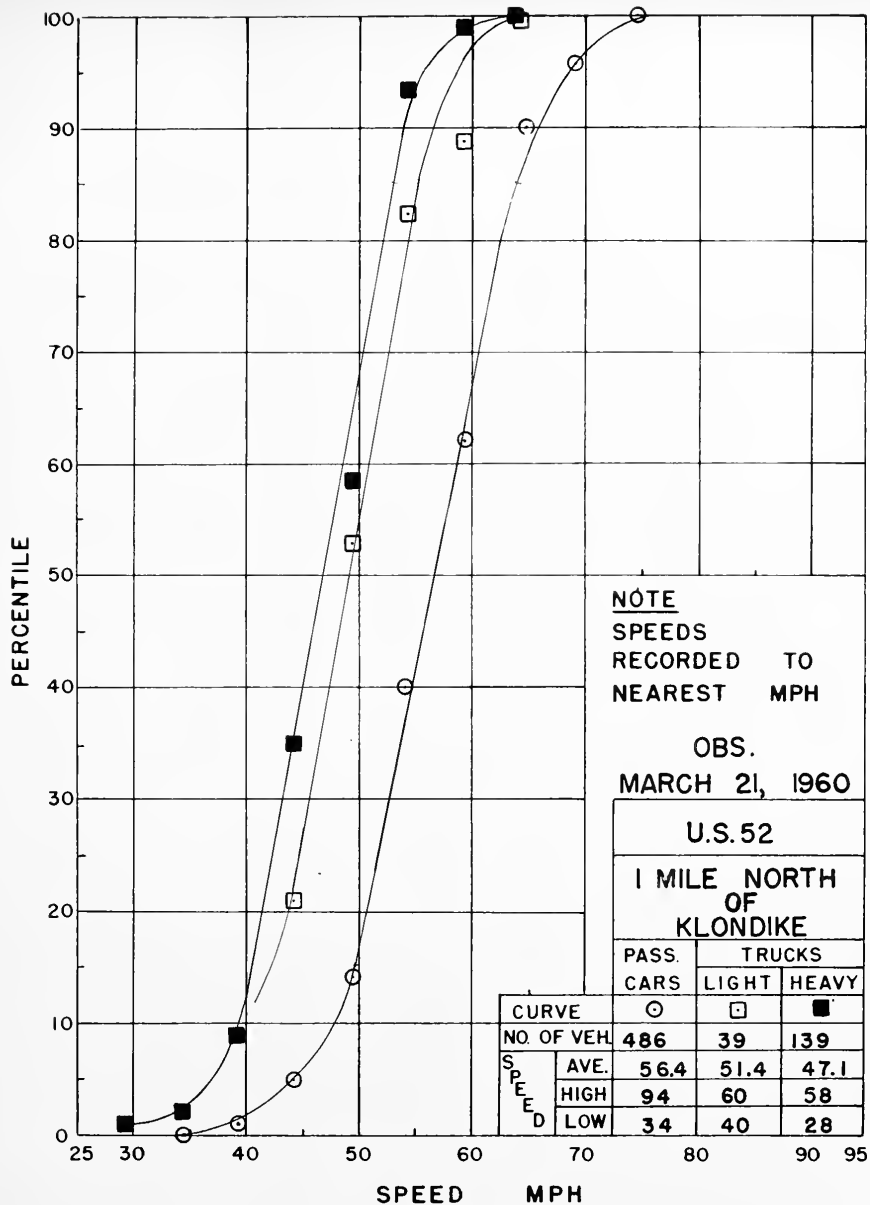


FIGURE 2



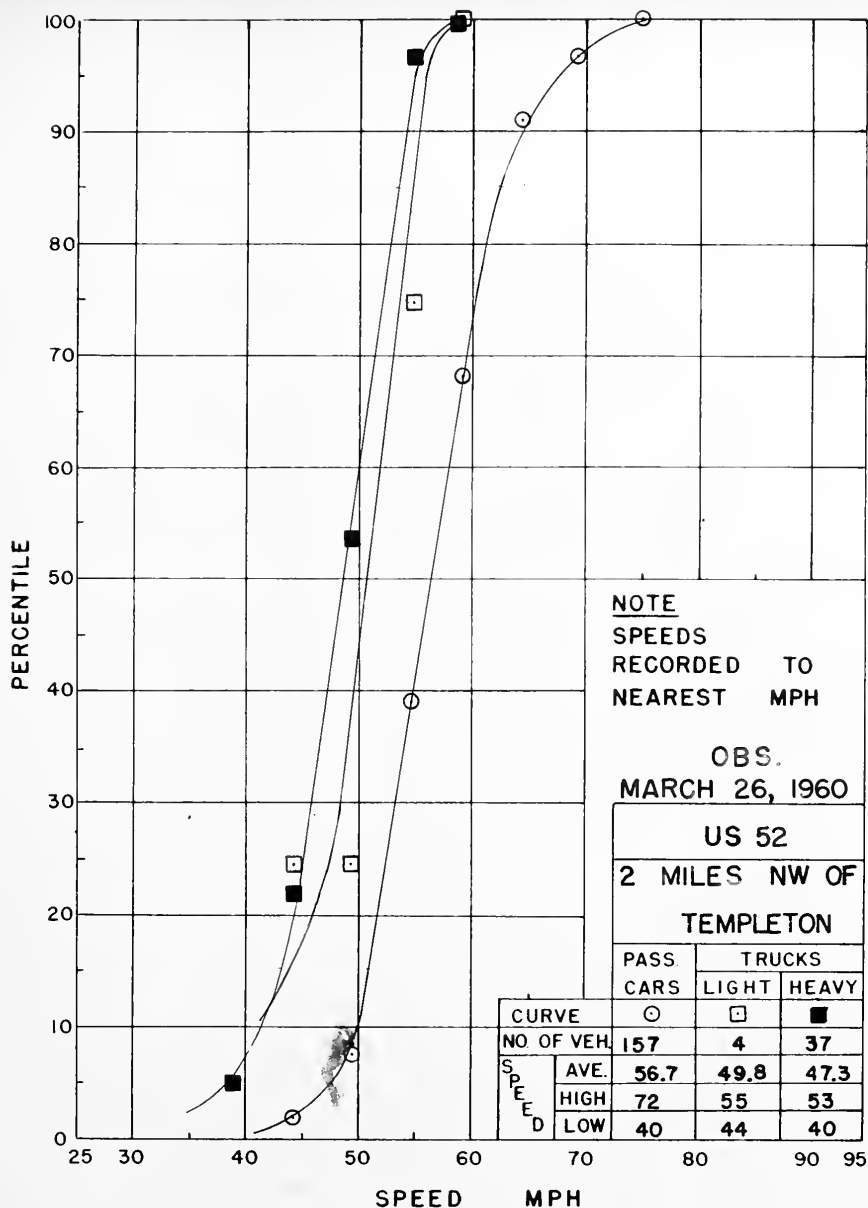


FIGURE 3



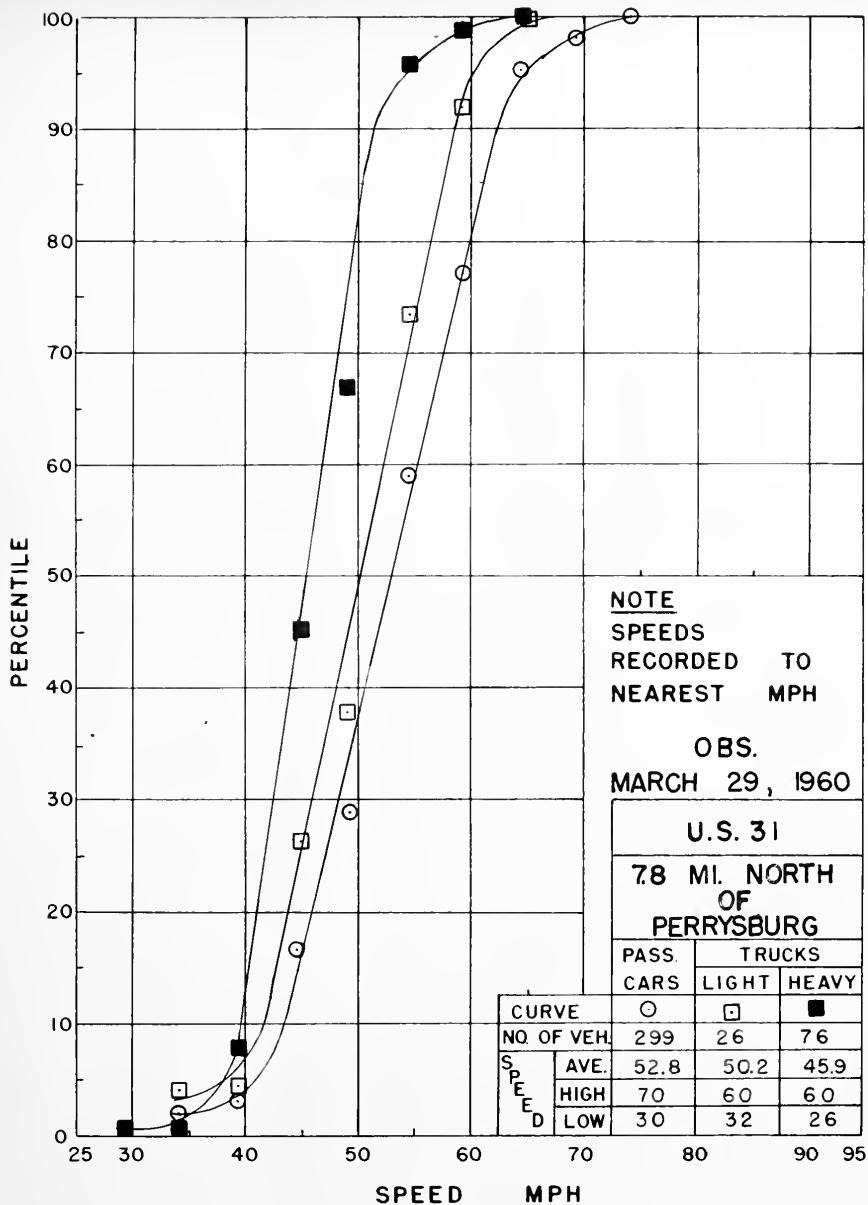


FIGURE 4

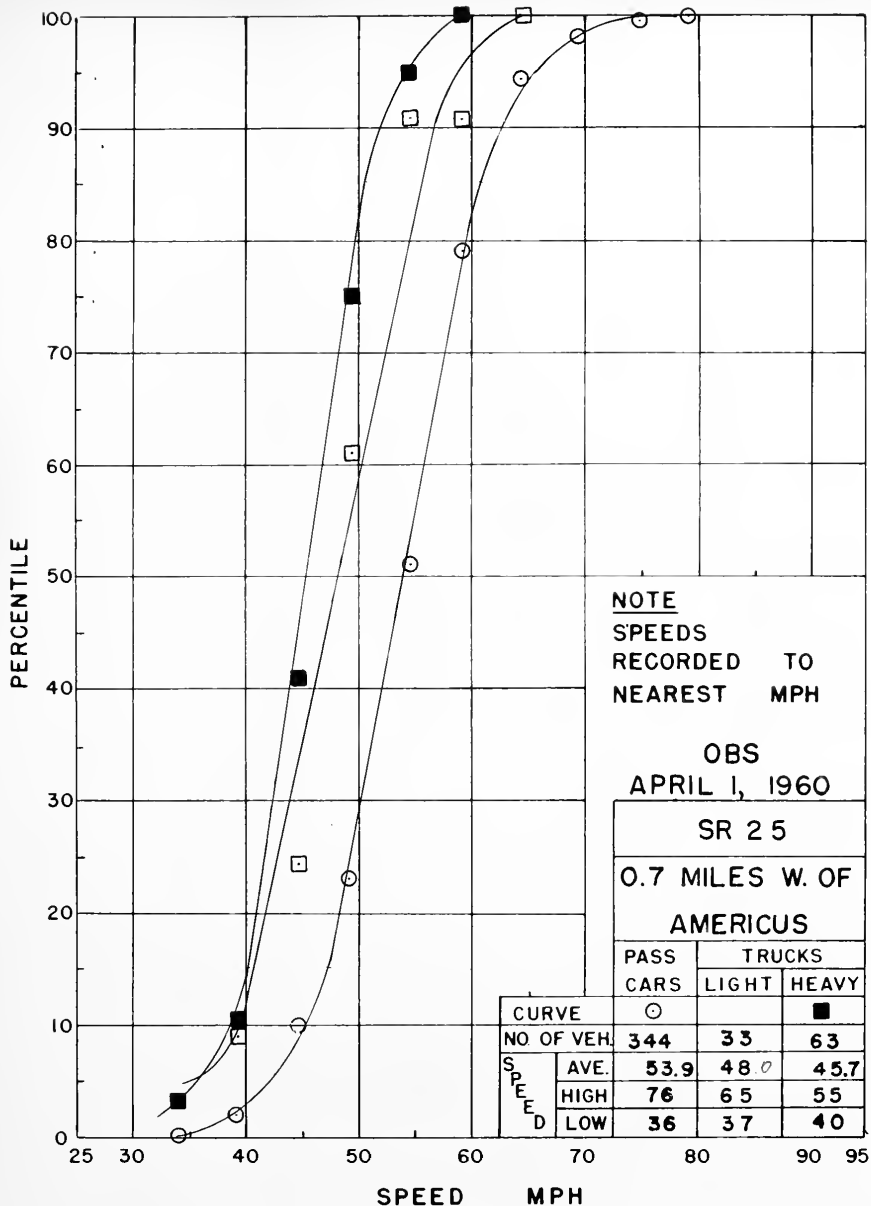


FIGURE 5

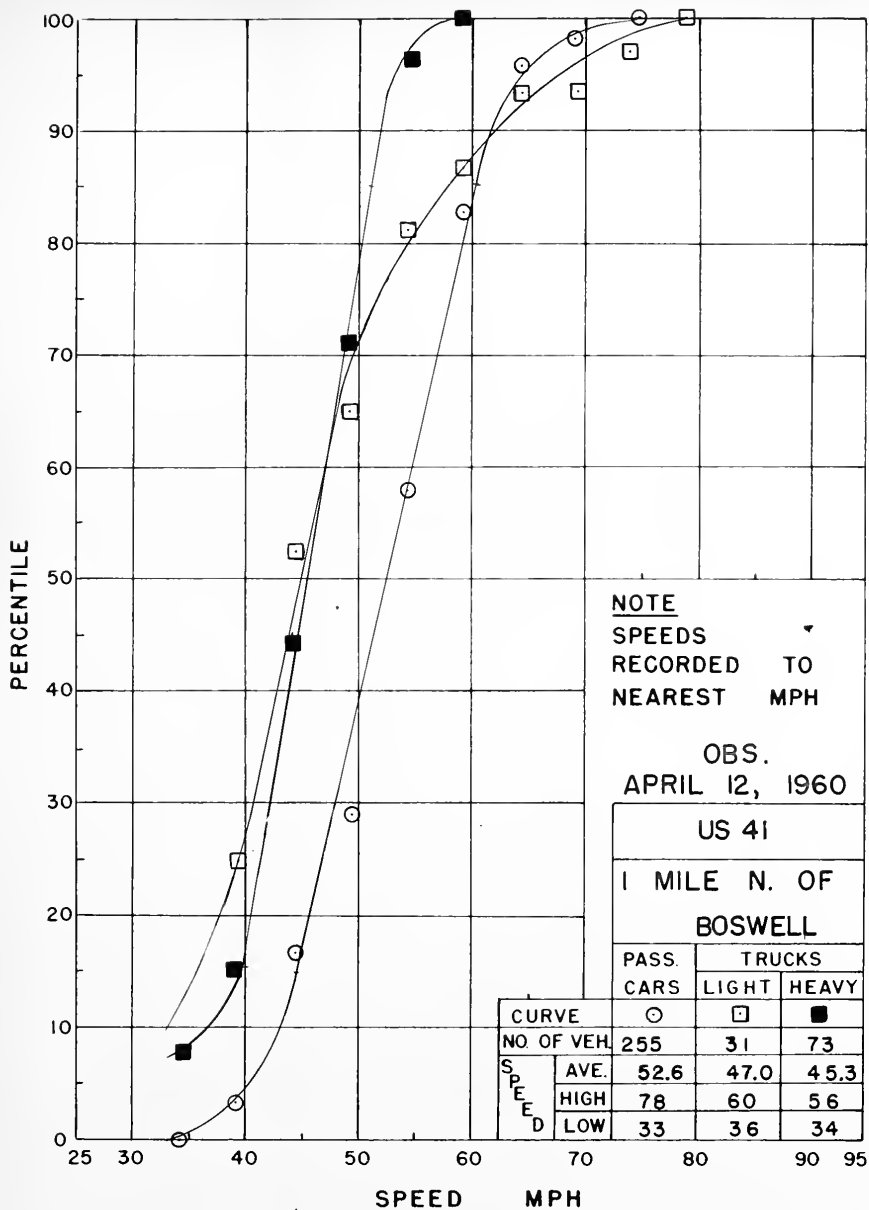
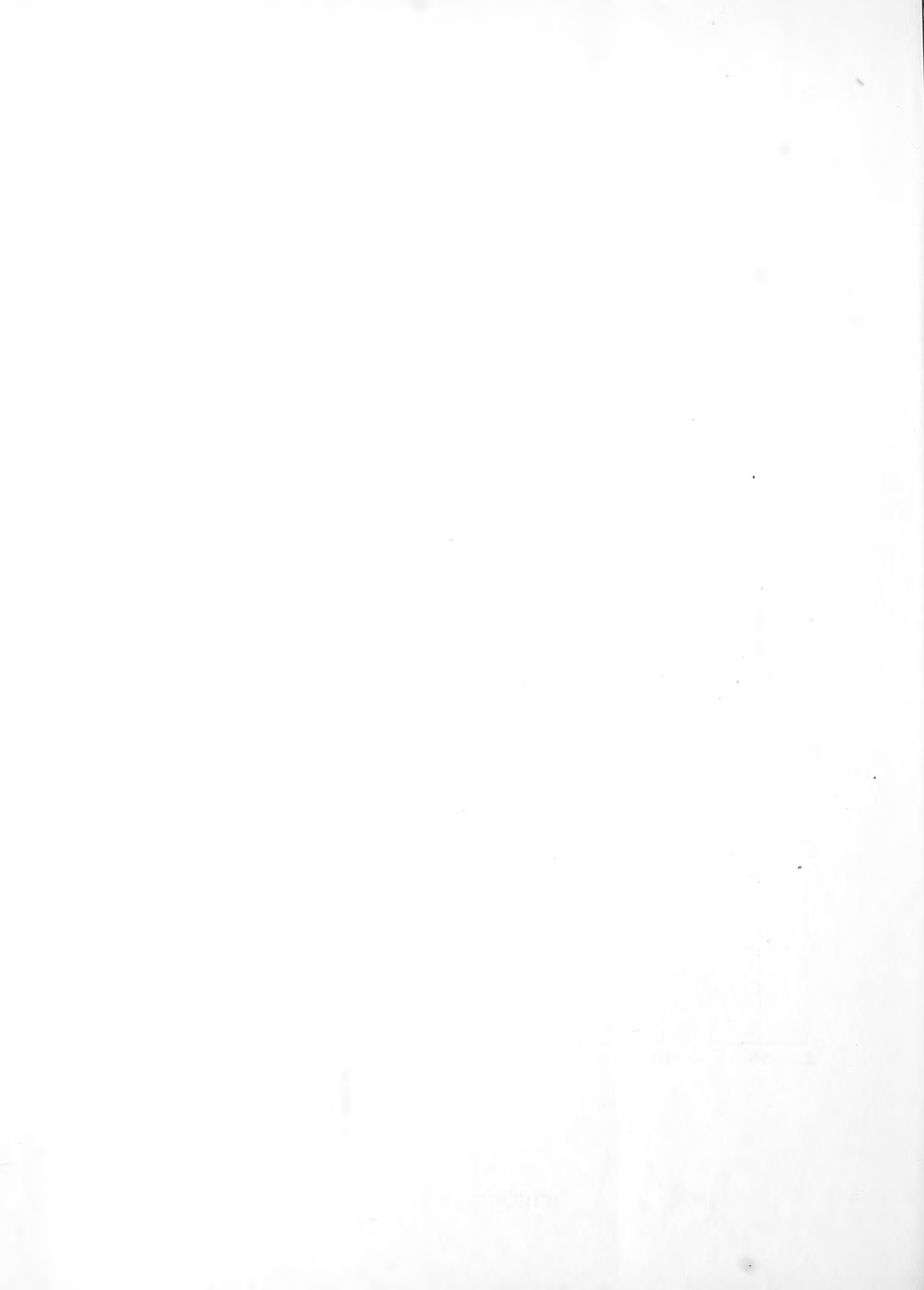


FIGURE 6



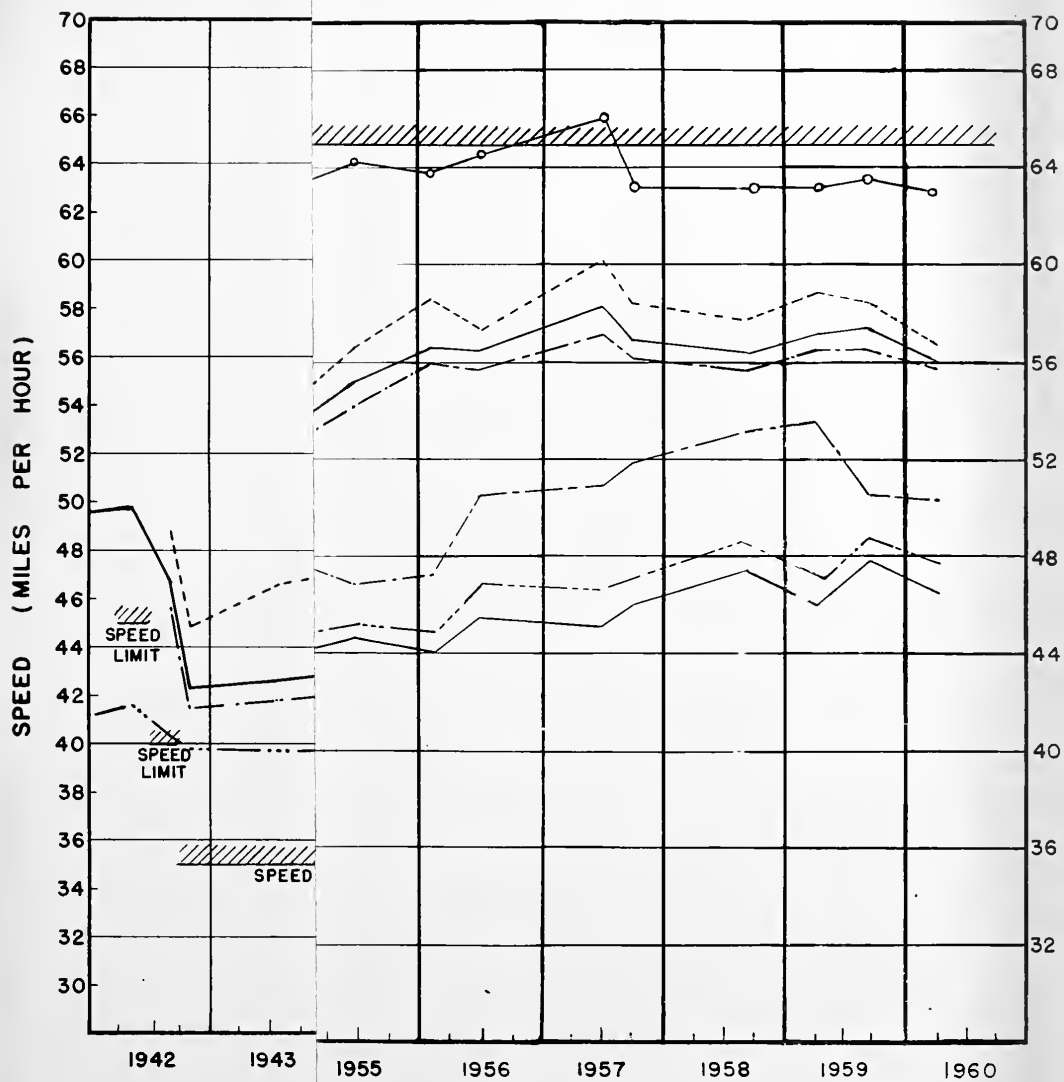
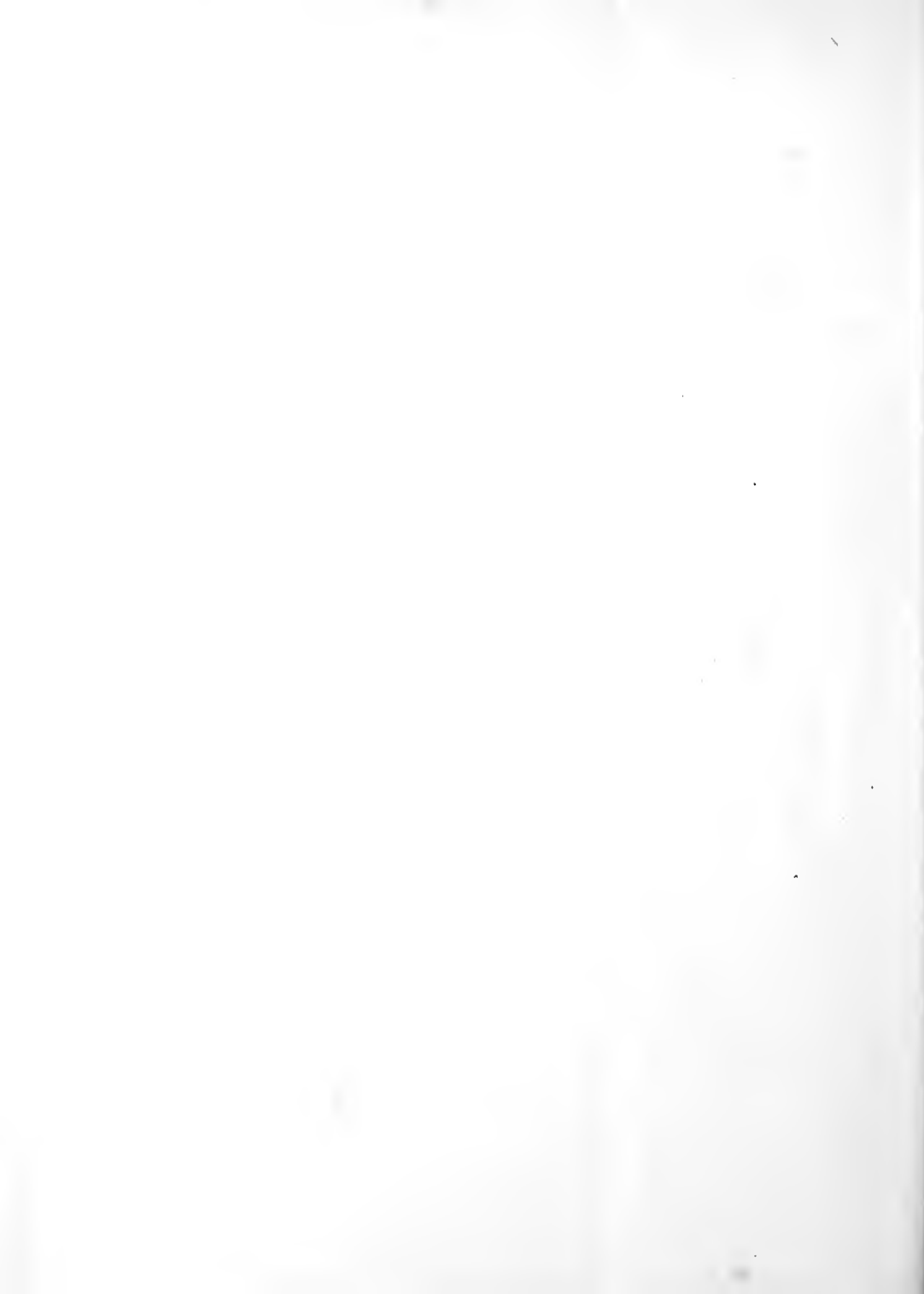
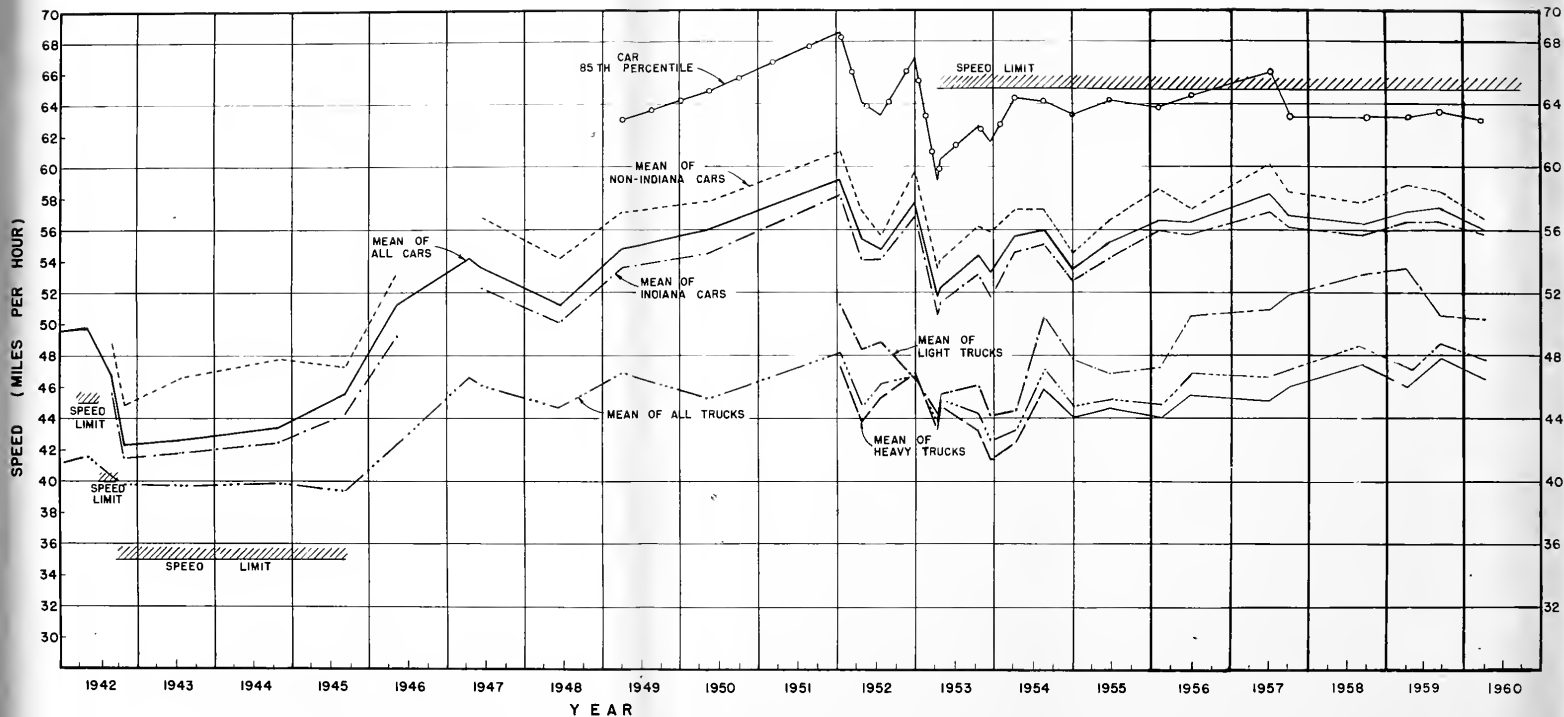


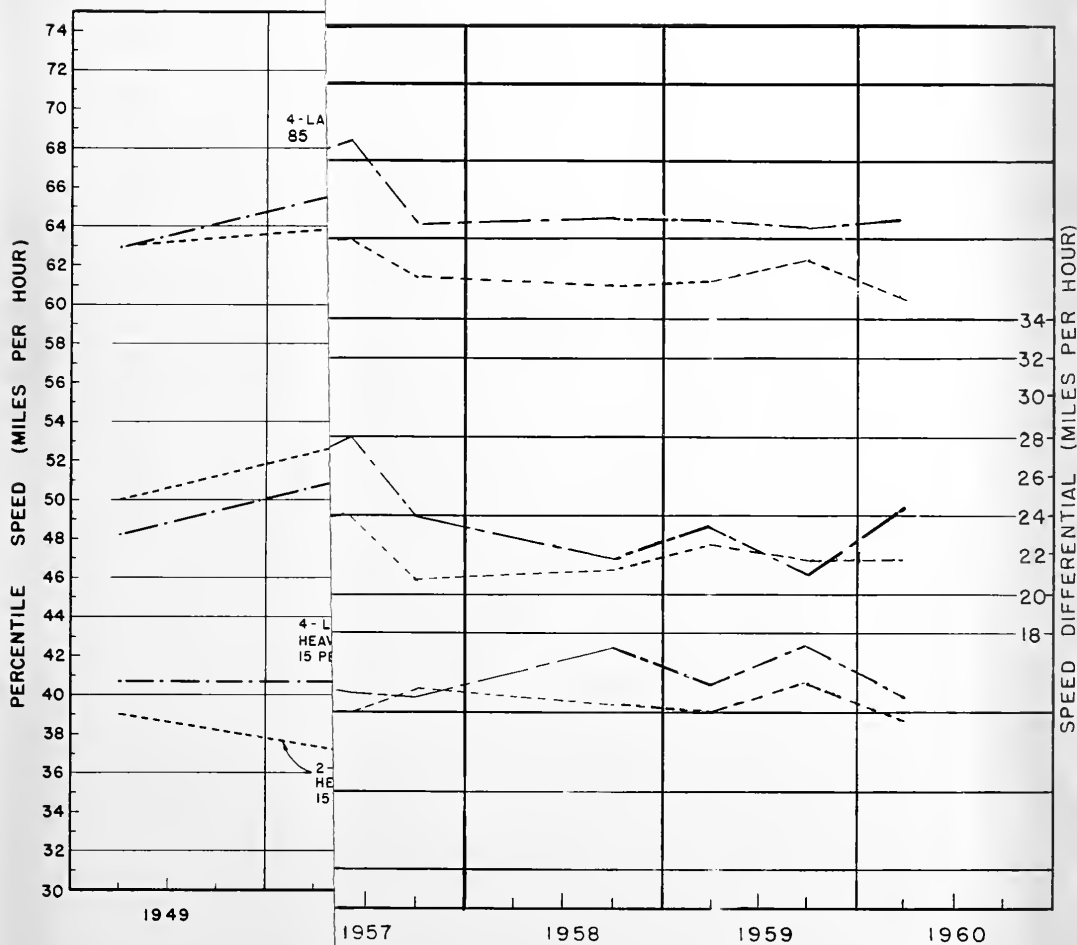
FIG. 7





INDIANA RURAL SPEED TRENDS 1942-1960

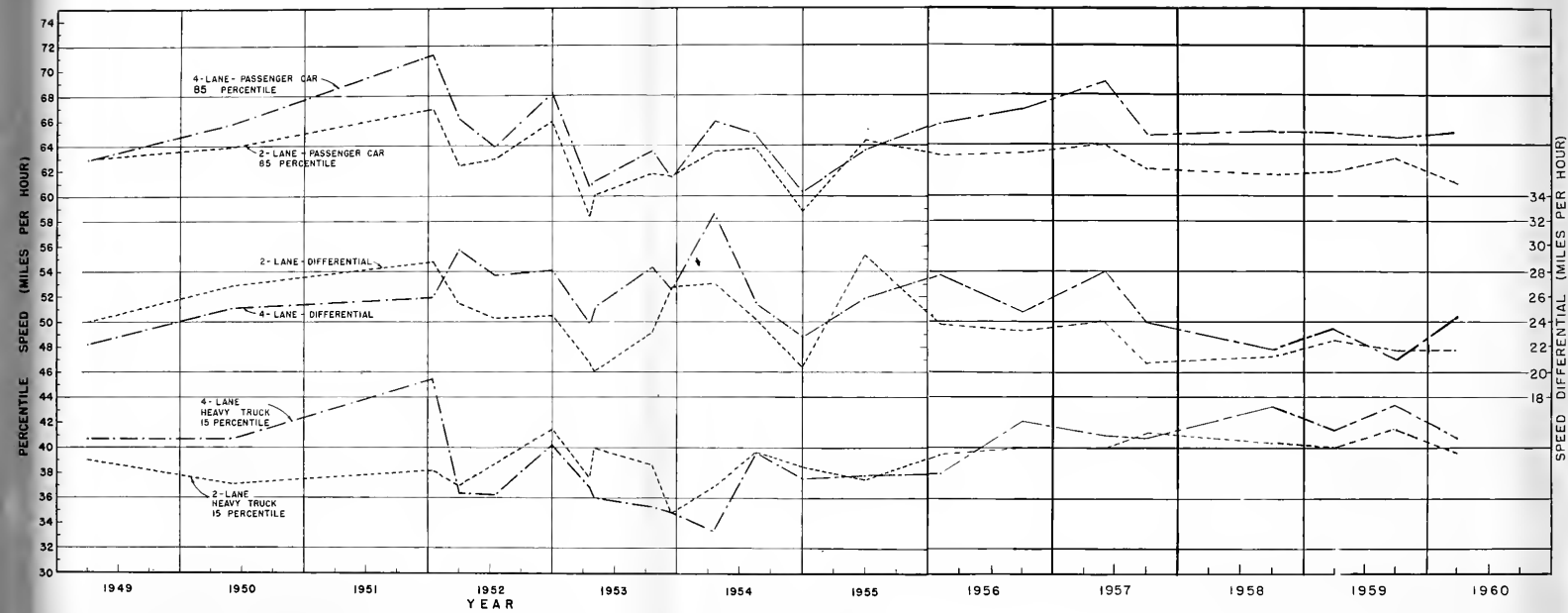




TRENDS

FIG. 8





TRENDS IN PERCENTILE SPEEDS AND SPEED DIFFERENTIAL 1949—1960

FIG. 8



